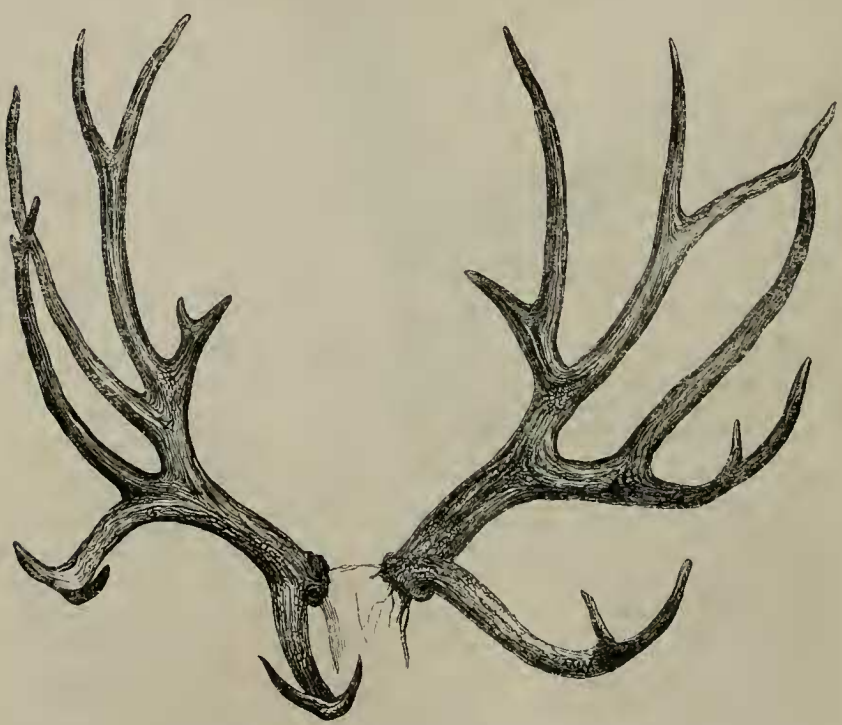
5. On *Cervus schomburgki* (Blyth).

By Sir Victor Brooke, Bart., F.Z.S.

[Received February 11, 1876.]

No fresh information of any consequence having been added to our knowledge of *Cervus schomburgki* since Mr. Blyth's original notice of the species (P. Z. S. 1863, p. 155, and 1867, p. 835), I have thought the following details and specific diagnosis, based on specimens which I recently received from Siam, and on an adult stag mounted in the gallery of the Muséum d'Histoire Naturelle at Paris, worthy of the Society's notice. For the Siamese specimens, which consist of the frontlet and horns of a remarkably fine old male, and a pair of loose horns of abnormal and very interesting growth, I am indebted to the kindness of Dr. Campbell, late resident medical officer of the British Consulate at Bangkok. Respecting the locality from which the specimens were obtained, Dr. Campbell writes, "in reply to your queries, I believe that all the specimens were procured in Northern Siam, probably even in the tributary States named Laos or Shan." The horns of the normal specimen (fig. 1), which are of very vigorous growth, possessing 20 distinct points, present all the characters described by Mr. Blyth as typical of the horns of

Fig. 1.



Normal antlers of *C. schomburgki*.

this fine species. The entire external surface of the abnormal horns (fig. 2) is covered with dense nodular exostosis, intersected by deep furrows, which adds greatly to their circumference, and gives to the extremities of the tines a blunt rounded outline. A section through the centre of one of the tines shows no line of demarcation between the external and internal portions of the horn, the same remarkable density pervading the whole; hence the very great weight of the horns, which is nearly double that of the normal pair.

Fig. 2.

Abnormal antlers of *C. schomburgki*.

There can, I think, be no doubt that this abnormal condition has been the result of injury to the testes of the deer to whom these horns belonged—many specimens, affected by a similar exostosis, which exist in my own and public collections having been the direct result of castration. Though much still remains to be ascertained by carefully conducted experiment and observation before an exact and exhaustive knowledge of the effects of injuries to the testes of deer upon their antlers can be obtained, the three following propositions may, I think, be considered as resting upon a moderately firm basis.

(1) If a deer is perfectly castrated within the first six months of his life, no antlers are ever developed. (2) If castrated during the growth of his antlers, their growth in a natural direction is immediately arrested, and the velvet is retained during life, the horns frequently assuming very varied monstrous forms. (3) The castration of a deer with fully grown antlers free from velvet, causes the premature fall of these antlers, which are immediately replaced by a pair of antlers of normal or subnormal external outline and dimen-

sions, which remain, with their velvety periosteum, persistent during the remainder of the animal's life. The two former of these propositions I have myself verified by experiment; the third I must, for the present, take upon the authority of former experimenters*, and upon the assurance of Mr. Sawyer, Head Keeper of the Royal Park at Richmond, who, some years ago, informed me that he had very frequently tried this experiment for himself and invariably with the same result.

From the almost perfectly normal outline and dimensions of these abnormal horns of *Cervus schomburgki* it is, I think, evident that they are referable to a deer castrated whilst in "hard horn." Their exostosed superficial surface, in which their abnormality consists, is accounted for by the supposition that the velvety periosteum being in full connexion (as it was possibly for some years) with the circulatory system, continued to perform, probably in a sluggish and irregular manner, its proper physiological function, the deposit of osseous matter, thus giving rise to a slowly increasing exostosis, in which the external arterial and venal canals became more and more deeply imbedded. At the same time the great density and weight of the horns seems to indicate that this external deposit of osseous matter was accompanied by an internal deposit which gradually obliterated the cancellous tissue of the centre of the horn.

The form of horns described as characteristic of *Cervus schomburgki* in the following diagnosis is based on the examination of numerous specimens, including the types; the external coloration and body-measurements upon the adult male specimen preserved in the Muséum d'Histoire Naturelle at Paris. This specimen was sent by M. Bocourt from Siam in 1868, and is that mentioned by Mr. Blyth (P. Z. S. 1867, p. 835), and later by Mr. Sclater (Trans. Z. S. vol. vii. p. 349).

The comparative measurements of *Cervus schomburgki*, *Cervus duvaucelli* (Cuv.), and *Cervus eldi* (auct. anon.) are taken from the frontlet and horns of the adult male *Cervus schomburgki* (fig. 1) above mentioned and from very fine skulls of *Cervus duvaucelli* and *Cervus eldi* in my own collection.

Cervus schomburgki (Blyth).

Adult male.—Antlers with very long powerful brow-antlers, which are frequently forked; beam very short, and more or less laterally compressed, upper part of the antlers strictly dichotomous, each of the main branches about equally developed, and in itself dichotomous, and furnished with long cylindrical tines. External surface of the antlers smooth and polished. Hair in winter rather long and coarse. General colour uniform brown, darkest on the nose and upper surface of the tail, and lightest on the cheeks and lower parts of the sides and haunches. Lower lip, belly, and under surface of the tail whitish. Upper lip, occiput, and limbs with a decided tinge

* See a curious old work to which Prof. Rolleston has lately called my attention, entitled 'The Economy of Nature in Acute and Chronical Diseases of the Glands,' by Dr. Richard Russell (pp. 21–24).

of rufous. The hair on the front of the metacarpal cannon bones is lengthened into an everted mane about 2 inches in length.

Immature male.—Antlers with the posterior of the two main branches less developed than the anterior branch.

Female. Unknown.

Hab. Northern parts of Siam.

	Cervus schomburgki.	*Cervus duvaucelli.*	*Cervus eldi.*
	inches.	inches.	inches.
Height at shoulder	41	43	32
Length of ear	6·5	7	
Width of ear	3·8	3·5	
Length of tail, exclusive of hair	4	5	
Length of beam from burr to fork	8	17	
Length of longest tine on anterior branch of fork	16	13	
Length of longest tine on posterior branch of fork	17	11·5	
Greatest span of coronal tines	22·2	18	
Length of brow-antlers	17·5	14·7	10
Total length of skull		15·4	13
From free extremity of præmaxillæ to tip of nasals		3·3	2·6
From ditto to anterior rim of orbit		8·2	6·9
Extent of upper premolars		1·9	1·35
Extent of upper molars		2·6	1·85
Extent of lower premolars		1·8	1·3
Extent of lower molars		2·9	2·15

March 21, 1876.

Dr. E. Hamilton, V.P., in the Chair.

Mr. Sclater exhibited a series of skins of the Parrots of the Fiji Islands, obtained by Mr. E. L. Layard, F.Z.S., and belonging to Lord Walden's Collection. Mr. Sclater called special attention to a new species of the genus *Pyrrhulopsis* of Reichenbach, from the island of Taviuni, which Mr. Layard proposed to call *taviunensis*, represented by several specimens. This species had nearly the same purplish red colour as *P. tabuensis* (sive *atrigularis*, Peale), of which a fine specimen was living in the Society's Gardens—but was readily distinguishable by the total absence of the blue nuchal collar. Referring to his former remarks on this subject (P. Z. S. 1864, p. 158), Mr. Sclater pointed out that the special habitat of four species of this group of Parrots had now been ascertained, and showed them on a chart of the Fiji group. These were:—

1. P. ATRIGULARIS (Peale): Ngau Island (*Rayner*).

2. P. TAVIUNENSIS, Layard : Taviuni (*Layard*).

3. P. SPLENDENS (Peale) : Kandavu and Viti Levu (*Layard*).

4. P. PERSONATA (G. R. Gray) : Kandavu (*Layard*).

It seemed now quite certain, from the researches of Dr. E. Gräffe (*cf.* J. f. O. 1870, p. 416), that the true *P. tabuensis* was found in the Tonga group, not, indeed, on the island of Tongatabu, but on the adjoining island of Eua or Eoua of that group. Mr. Sclater was therefore not yet quite convinced, in spite of what Messrs. Finsch and Hartlaub had stated (J. f. Orn. 1870, p. 123), that Peale's *P. atrigularis* (which he had identified, P. Z. S. 1864, p. 158, as applicable to Mr. Rayner's specimen from Ngau Island, Feejees) was certainly = *P. tabuensis*, unless, indeed, it should turn out that *P. tabuensis* had been introduced by the natives of the Tonga Islands from the Feejee group *.

The following papers were read :—

1. Descriptions of Lepidoptera from the Collection of Lieut. Howland Roberts. By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

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(Plate XXII.)

The first two species here described were lent to me by Lieut. Roberts soon after his arrival in England ; but press of work has prevented me from determining their affinities until now.

Family ERYCINIDÆ.

STIBOGES, n. gen.

Allied to *Abisara*, aspect of *Nymphidium*.

Wings with rounded outer margin broad, costal nervure of primaries terminating abruptly at about the middle of the costa, opposite to the end of the discoidal cell, subcostal with five branches, the last two forking to apex ; upper radial emitted from the inferior margin of the subcostal near its origin ; lower radial nearly equally dividing the discocellulars, which are concave ; second and third median branches emitted near together ; precostal of secondaries short, oblique, directed backwards ; costal nervure short, straight, oblique, terminating at basal third of costa ; subcostal forking beyond the

* Mr. Salvin kindly sends me an extract from the "Voyage in search of La Perouse" (translated from the French, 2 vols. 8vo, 1800) in illustration of this point. "On the morning of the 26th March we landed (on Tongataboo). . . . They (the natives) sold us several birds; among others a charming species of Lory, which they assured us had been brought them from Fidgi."—*Tom. cit.* ii. p. 105.—P. L. S.